

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (original) Surface-modified nanoparticles whose surface is covered completely or near-completely with
 - (A) modifying groups which
 - are attached covalently to the surface via at least one linking functional group (a)
 - and
 - contain at least one inert spacer group (b) and
 - contain at least one reactive functional group (c) which is connected via the group (b) to the group (a) and is inert toward the reactive functional groups of the surface to be modified,
 - (B) modifying groups which
 - are attached covalently to the surface via at least one linking functional group (a)
 - and
 - contain at least one inert group (d) attached to the surface via group (a) having a smaller hydrodynamic volume V_H than the inert spacer group (Ab), and
 - (C) modifying groups which
 - are attached covalently to the surface via at least one linking functional group (a)
 - which contains at least one silicon atom,
 - contain at least one inert group (e) attached to the surface via group (a), and

have a smaller hydrodynamic volume V_H than the modifying group (A).

2. (original) Surface-modified nanoparticles as claimed in claim 1, wherein the hydrodynamic volume V_H can be determined by means of photon correlation spectroscopy or estimated using the equation

$$V_H = (r_{\text{cont}}/2)^3$$

in which r_{cont} is the effective contour length of a molecule.

3. (previously presented) Surface-modified nanoparticles as claimed in claim 1, wherein the reactive functional groups of the surface to be modified are hydroxyl groups.

4. (previously presented) Surface-modified nanoparticles as claimed in claim 1, wherein the linking functional group (Aa) contains at least one silicon atom.

5. (previously presented) Surface-modified nanoparticles as claimed in claim 1, wherein the inert spacer group (Ab) is an at least divalent organic radical R.

6. (previously presented) Surface-modified nanoparticles as claimed in claim 1, wherein the reactive functional group (Ac) is activable thermally, and/or with actinic radiation, or both thermally and with actinic radiation.

7. (previously presented) Surface-modified nanoparticles as claimed in claim 6, wherein the reactive functional group (Ac) is thermally activable and is a blocked isocyanate group.

8. (previously presented) Surface-modified nanoparticles as claimed in claim 1, wherein the linking functional group (Ba) is selected from the group consisting of ether, thioether, carboxylate, thiocarboxylate, carbonate, thiocarbonate, phosphate, thiophosphate, phosphonate, thiophosphonate, phosphite, thiophosphite, sulfonate, amide, amine, thioamide, phosphorhide, thiophosphorhide, phosphonhide, thiophosphonamide, sulfonamide, imide, hydrazide, urethane, urea, thiourea, carbonyl, thiocarbonyl, sulfone and sulfoxide groups.

9. (previously presented) Surface-modified nanoparticles as claimed in claim 1, wherein the inert group (Bd) and the inert group (Ce) are monovalent organic radicals R^2 .

10. (original) Surface-modified nanoparticles as claimed in claim 9, wherein the monovalent organic radicals R^2 are selected from the group consisting of aliphatic, cycloaliphatic, aromatic, aliphatic-cycloaliphatic, aliphatic-aromatic, cycloaliphatic-aromatic, and aliphatic-cycloaliphatic-aromatic radicals.

11. (previously presented) Surface-modified nanoparticles as claimed in claim 10, wherein the inert groups (Ab), (Bd), and (Ce) contain at least one at least divalent functional group, and/or at least one substituent, or both.

12. (previously presented) Surface-modified nanoparticles as claimed in claim 1, prepared by reacting the reactive functional groups of the surface of nanoparticles for modification with

(A) at least one modifier containing

at least one reactive functional group (a) which is reactive toward the reactive functional groups of the surface to be modified,

at least one inert spacer group (b) and

at least one reactive functional group (c) which is connected via the group (b) to the group (a) and is inert toward the reactive functional groups of the surface to be modified,

(B) at least one modifier containing

at least one reactive functional group (a) which is reactive toward the reactive functional groups of the surface to be modified, and

at least one inert group (d) having a smaller hydrodynamic volume V_H than the inert spacer group (Ab), and also

(C) at least one modifier having a smaller hydrodynamic volume V_H than the modifier (A), containing

at least one reactive functional group (a) which contains at least one silicon atom and is reactive toward the reactive functional groups of the surface to be modified, and
at least one inert group (e).

13. (previously presented) Surface-modified nanoparticles as claimed in claim 12, wherein the modifier (A) is selected from the group consisting of silanes of the general formula II:



in which the indices and the variables have the following definitions:

m and n are integers from 1 to 6;

o is 0, 1 or 2;

Ac is a group activable thermally and/or with actinic radiation, as defined above;

R is an at least divalent organic radical, as defined above;

R² is a monovalent organic radical, as defined above; and

R³ is a hydrolyzable atom or group.

14. (original) Surface-modified nanoparticles as claimed in claim 13, wherein the hydrolyzable atom R³ is selected from the group consisting of hydrogen atoms, fluorine atoms, chlorine atoms, and bromine atoms and the hydrolyzable group R³ is selected from the group consisting of hydroxyl groups and monovalent organic radicals R⁴.

15. (currently amended) Surface-modified nanoparticles as claimed in claim 14, wherein the monovalent organic radical R^4 is selected from the group consisting of groups of the general formula III:



in which the variable Y stands for an oxygen atom $[L]$ or a carbonyl group, carbonyloxy group, oxycarbonyl group, amino group $-NH-$ or secondary amino group $-NR^2-$.

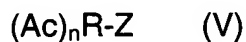
16. (previously presented) Surface-modified nanoparticles as claimed in claim 13, wherein the silanes (A) of the general formula II are obtained by

(1) reacting polyisocyanates with blocking agents and with silanes of the general formula IV:



in which the variable Z stands for an isocyanate-reactive functional group; or

(2) reacting compounds of the general formula V:



with silanes of the general formula VI:

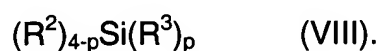


17. (previously presented) Surface-modified nanoparticles as claimed in claim 12, wherein the modifier (B) is selected from the group consisting of hydroxyl-containing compounds of the general formula VII:



18. (original) Surface-modified nanoparticles as claimed in claim 17, wherein the hydroxyl-containing compounds of the general formula VII are primary aliphatic alcohols.

19. (previously presented) Surface-modified nanoparticles as claimed in claim 12, wherein the modifier (C) is selected from the group consisting of silanes of the general formula VIII:



20. (previously presented) Surface-modified nanoparticles as claimed in claim 1, wherein the nanoparticles for modification are selected from the group consisting of metals, compounds of metals, and organic compounds.

21. (currently amended) Surface-modified nanoparticles as claimed in claim 20, wherein the nanoparticles for modification are metals or compounds of metals, selected from main groups three to five~~[[,]]~~ and transition groups three to six~~[[,]]~~ and transition groups one and to two of the periodic system of the elements, plus and the lanthanoids.

22. (previously presented) Surface-modified nanoparticles as claimed in claim 20 wherein the nanoparticles for modification are compounds the metals selected from the group consisting of oxides, oxide hydrates, sulfates, hydroxides, and phosphates.

23. (previously presented) A process for preparing surface-modified nanoparticles as claimed in claim 1, comprising reacting the nanoparticles for modification in a first stage with at least one modifier (A) and also
in a second stage with at least one modifier (B) and in a third stage with at least one modifier (C) or
in the second stage with at least one modifier (C) and in the third stage with at least one modifier (B) or
in the second stage with at least one modifier (B) and at least one modifier (C).

24. (original) The process as claimed in claim 23, wherein the modifiers (A), (B), and (C) are used in an amount which is sufficient for the complete or near-complete coverage of the surface of the nanoparticles for modification.

25. (previously presented) A process for producing modified nanoparticles as claimed in claim 13, comprising jointly hydrolyzing and condensing at least one modifier (A) of the general formula II and at least one modifier (C) of the general formula VIII and then reacting the resultant polycondensates with at least one modifier (B).

26. (withdrawn) A dispersion comprising surface-modified nanoparticles as claimed in claim 1, in aprotic solvents, reactive diluents, or both aprotic solvents and reactive diluents.

27. (withdrawn) The dispersion as claimed in claim 26, wherein the aprotic solvents, and/or reactive diluents, or both have with regard to the modifying groups (A) and (B) a Flory-Huggins parameter $\chi > 0.5$.

28. (withdrawn) The dispersion as claimed in claim 26, having, based on its total amount, a solids content of at least 30% by weight.

29. (withdrawn) The dispersion as claimed in claim 28, comprising at least one additive selected from the group consisting of polymeric and oligomeric binders, crosslinking agents, color pigments, effect pigments, organic and inorganic, transparent and opaque fillers, other nanoparticles different than the nanoparticles of the invention, UV absorbers, light stabilizers, free-radical scavengers, devolatilizers, slip additives, polymerization inhibitors, photoinitiators, initiators of free-radical and cationic polymerization, defoamers, emulsifiers, wetting agents, dispersants, adhesion promoters, leveling agents, film formation auxiliaries, sag control agents (SCAs), rheological control additives (thickeners), flame retardants, siccatives, dryers, antiskinning agents, corrosion inhibitors, waxes, and flatting agents.

30. (currently amended) A composition comprising ~~The~~ the use of the surface-modified nanoparticles as claimed in claim 1, wherein the composition is a member selected from the group consisting of coating materials, adhesives, sealants, compounds based on engineering plastics, and curable compositions.

31. (previously presented) Surface-modified nanoparticles as claimed in claim 6, wherein the reactive functional group (Ac) can be activated with actinic radiation and contains at least one carbon-carbon multiple bond.

32. (previously presented) A dispersion comprising surface-modified nanoparticles prepared by the process as claimed in claim 23 in aprotic solvents, reactive dilutents, or both aprotic solvents and reactive diluents.